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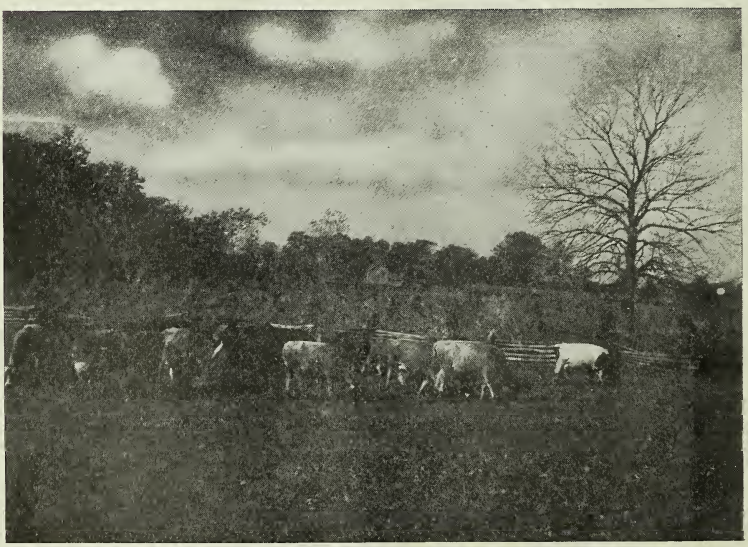

RURAL SCENES IN NOVEMBER

THE AGRICULTURAL STUDENT.

VOL. XIII. OHIO STATE UNIVERSITY, COLUMBUS, NOVEMBER, 1906 No. 2

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EDITORIAL NOTES

This issue has been edited by the Business Manager.

THE STUDENT desires to keep its readers in touch with the work of the alumni and ex-students of the College of Agriculture and any news item or article from them which may be of interest to the readers will be thankfully received and published.

The University Bulletin announcing the winter course in agriculture is now ready for distribution and can be obtained on application to the Dean of the college.

This issue of THE STUDENT contains an announcement of the new winter course in agriculture. An exceptional opportunity will be offered the students of this course this year to hear many of the men prominent in agricultural lines from all parts of the United States, for, during the second week of the course, the American Breeders' Association will meet in Columbus.

Interest in live stock circles about the college is now at its height. The time is drawing near when the judging team wlll be chosen to represent the college at the International Student's Judging contest. May a winning team be chosen.

As an evidence that the interest in apple culture in Ohio is rapidly developing, the unusually large number of specimens and questions sent this fall to the Department of Horticulture may be cited. The success of the commercial apple growers in different parts of the state is inducing others to embark in the same business. On some of the cheap, rough lands of Ohio apple growing and some phase of forestry seems to be a good combination.

The time is rapidly approaching for the last and greatest of the fairs, the International Live Stock Exposition. It is here that the cream of the live stock of the United States and Canada comes together in a battle royal for the highest honors in the show ring. We have there the very best representatives of the different breeds, affording the opportunity for a stockman or student to become acquainted with breed type. The exposition is looked upon by all stockmen and collegemen as the greatest educational show in the country.

Dean Wm. Liggett, of the Minnesota College of Agriculture, in answer to the question, "What do you regard as one of the great achievements of modern animal husbandry?" said, "I believe it is the International Live Stock Exposition in Chicago, which for several years has been conducted with so much success and satisfaction. The reputation it has won for itself and the disinterested support it receives, bespeaks its indisputable educational value. Its well equipped buildings, its efficient board of managers, its unlimited supply of materials and live stock, constitutes a veritable university for the breeder, the feeder, the dealer and the student alike may there, free of cost, secure for himself a knowledge of breeds, types and characteristics elsewhere impossible outside of colleges of agriculture. It gives an impetus to the live stock industry each year that is felt the world over and that expresses itself in revived interest in the improvement of live stock. Much of the activity that reveals itself in all lines of breeding and feeding is, I believe, directly traceable to the enthusiasm aroused and the knowledge imparted by the great International Live Stock show."

John S. Goodwin, president of the American Aberdeen-Angus Breeders' Association, thus regards the International: "The wider my observation of live stock goes at home and abroad, the greater is my appreciation of the International. It is incomparable in its magnitude and magnificence, and as an educator for the establishment of standards for breeders, I believe it is the most effective ever known. The International is the great university of live stock education. It deserves the sincere sympathy and the active support of every breeder of pedigreed beef cattle, and the attendance of every stock farmer who seeks to keep abreast the times in his business."

These men only voice the sentiment of hundreds of others whose attendance at this great show has made them better acquainted with the breeds, types and methods of management. This year's International promises to eclipse all others and why not avail yourselves of the opportunity of seeing this great show?

It is interesting to note some of the features which are to benefit the agri-

cultural colleges. The feature which is taking most of the attention of eight or ten colleges is the students' judging contest. Two trophy prizes are offered in this contest, one a bronze horse to the team making the best showing in judging horses, the other a bronze bull, valued at $700 to the team making the best showing in judging cattle, sheep and swine. Besides these, McLaughlin Bros. have offered $300 in money to be divided among the eight highest men in the contest.

Mr. J. Ogden Armour has offered $5000 "to be distributed annually at the International Exposition in twenty scholarships to be competed for by the State Agricultural Colleges. The competition is to be based upon animal and grain exhibits from the several colleges and such other forms of agricultural student competition as may be recognized or established by the International Live Stock Exposition." These scholarships are to be known as the "J. Ogden Armour Scholarships," and are "to stimulate the efforts of the colleges in giving increased evidence to the farmer of the great value of their work."

This, together with several other special breeders' prizes, indicate the growing interest in this, the greatest stock show of the country and should draw a hearty support from all interested in live stock in any way.

The American Breeders' Association

The American Breeders' Association was organized at St. Louis, Mo., in December, 1903. The organization was the result of a call issued under the authority of the Association of Agricultural Colleges and Experiment Stations, for a meeting of those interested in the improvement of plants and animals and in the studies relating to breeding. The chairman of the organization committee in giving a brief history of the movement and the reasons for the formation of such a society, said:

"The cost of making a possible annual increase of ten or more per cent. in the billions of dollars' worth of American animal and plant products, or a total of hundreds of millions of dollars' worth of added annual income with but little added expense, is a large undertaking; but a billion dollars' worth of added wealth wrested from the soil every decade is a magnificent goal. No less of an incentive, at least to scientists, is the possible solution of the laws of development in plants, in the lower animals and in man. The promoters of this proposed plant and animal breeders' association believe that the practical breeders and the biological scientists have so much in common that they can be, mutually, very helpful.

"The correspondence incident to the preparation for this meeting, has shown that the state experiment stations, the United States Department of Agriculture, the laboratories in our great universities, and private breeders of animals and plants are ready to here join hands. This meeting should mark a new pulsation in the living being which man uses with which to draw from the earth his sustenance and much of his pleasures. This association will touch the interests of that strong body of men who breed animals, that more quiet, but no less useful class who improve plants, and will greatly aid all products and dealers in plant and animal products as well as all consumers of these commodities. Whether it proves cohesive and useful, depends upon having a good plan and upon the members who compose the organization.

"The Hon. James Wilson, Secretary of Agriculture, who is doing such a large service to breeding by his liberal policy in giving support to the plan of organizing breeding and research in heredity, suggested the American Association of Agricultural Colleges and Experiment Stations as the best organization under which to promote the proposed plant and animal breeders' association. Under his strong leadership, the official and general public are taking seriously the proposition that we build up a science, a technique and an industry of breeding plants and animals which shall add to the world's modern improvements, greatly improved forms of plant and animal life."

Under the plan of organization perfected at this meeting there are three classes of members. The annual membership consists of persons, societies and institutions interested in the objects of the association and paying an annual fee. Annual members may become life members by the payment of a fee of twenty dollars. Any person who has performed notable service in advancing the objects of the association may be elected to honorary membership, provided that not more than two honorary members may be elected in any one year.

The affairs of the association are under the direct charge of a council of seven members. Any action relating to the general policy of the organization, to become effective, must be approved by the general association.

A second enthusiastic meeting was held at Champaign, Ill., in February, 1905, and a third in Lincoln, Neb., in January, 1906. The next meeting will be held in Columbus, Ohio, during the Agricultural week, January 15-19, 1907.

In this large association the practical breeders of plants and animals are joined with the investigators and experimenters in breeding and heredity. A large membership of almost a thousand from all of these interests affords the society a means of obtaining a great mass of facts from which many of the general principles of heredity may be deducted.

A breeders' directory, published in each annual report, gives the name and address of members, the problems each member is interested in, the improved plants or animals for sale by the member and the works or articles that have been published. This directory is designed to be a dictionary of what is being done in breeding lines and who is doing it.

If you are a breeder of either plants or animals or are in any way interested in the problems of breeding and heredity, your name should be in this directory. The only way to get the annual report, to be in the directory, to help and be helped, is to become a member by sending one dollar to Secretary W. M. Hays, Washington, D. C., or come to Columbus next January during the annual meeting and take out a membership.

Live Stock at the 1909 Fair

The executive committee of the Alaska-Yukon-Pacific exposition, which is to be held in Seattle in 1909, has set aside $100,000 for a superior live stock show to be a surpassing feature of the fair.

The decision to spend so large a sum for the stock show at the fair is regarded locally as one of the most hopeful features in the exposition outlook. The northwest is tremendously interested in live stock, and the eastern breeders are coming more and more to appreciate the importance of the market

for fancy breeds opening before them. The result is certain to be a show far excelling anything of the sort ever before attempted in America. The stock show at the Portland fair, which was to most people's taking the most attractive feature of the cozy exposition, cost only $40,000.

The show is to be held under direction of the live stock committee of the exposition of which J. W. Clise, president of the Washington Trust Company, of Seattle, and an authority on live stock, is chairman. Associated with Mr. Clise are C. D. Stimson, W. H. Paulhamus, of Puyallup, D. Edward Frederick and Theodore N. Haller.

"We westerners are not yet an industrial people," said Mr. Clise in discussing the coming show. "We are for the most part farmers and stockraisers. The people of Idaho, Montana, Oregan and Washington are all stock raisers. Show me a man anywhere who has become well-to-do on his farm, and is not interested in fancy stock."

"We will have at this fair not only the best that the northwest can raise, but the best herds from all over America. Besides, there will be extensive importations from abroad made especially for the show at Seattle."

It is becoming increasingly evident that the Pacific northwest is an ideal region for stockraising. The coast counties, where the rainfall is heaviest, afford pasture almost the year around, making the problem of winter feed almost nil. On the ranges in the eastern part of Washington and Idaho, the farmers are coming to raise alfalfa and vetches by irrigation for feed, a few acres thus adapted being sufficient to keep a large herd during the short time when pasturage is poor.

Sheep likewise are proving big money-makers, and the sheepmen are improving their heards from year to year. The western farmer is not particularly strong on hogs as yet, because he has not yet developed a corn that can be grown in this wet climate, with its cold nights, in competition with that of the middle west. A fair substitute has been found in alfalfa and vetches, however, and the number of hogs raised is increasing every year. The biggest hog in the world, shown at the Portland fair last year, was raised by Kiddle Brothers, of Osland City, Oregon.

At the Portland fair, Oregon and Washington cattle won repeatedly in competition with the world. The best cow at the St. Louis show was Lucretia D., owned by W. M. Ladd, of Portland. P. A. Frakes, of Scappoose, who had lived on his farm for seventeen years, improving at every opportunity his herd of Holsteins, won thirteen prizes on fourteen entries at the Portland show. Other westerners did almost as well on stock which had not been bought just before the fair for show purposes, but which had been foaled and raised at home.

The Alaska-Yukon-Pacific exposition has been abundantly financed by the raising of $650,000 through the sale of stock in one day, but the $100,000 to be spent on prizes for the live stock show will not have to come from this amount, as by the time it is needed, the gate receipts will be available. The fair is to be held primarily for the purpose of exploiting the resources of Alaska and Yukon, but the possibilities of Oriental trade will be featured, and the fair will be an international exposition in every sense. Participation by the Unitd States government and the sister states will be on a large scale.

Winter Course in Agriculture at the Ohio State University

The announcement of the winter course in agriculture which is to be given at the Ohio State University this coming winter is now ready for distribution.

The course opens on January 7 and continues until March 6. Students will be admitted without examination, but must be at least sixteen years of age. To be benefited the most by the course, however, we believe that they should be at least twenty years of age and have had considerable practical experience on the farm.

Eight different subjects will be taught in the course, as follows: (1) breeding and feeding of live stock, (2) breeds of live stock and stock judging, (3) soil fertility, (4) farm crops, (5) farm horticulture, (6) farm mechanics, (7) farm management, (8) farm dairying.

Students will be allowed to choose not to exceed five of these subjects, and the only limitation in their choice is that made by the schedule. It has been impossible to arrange all of these subjects without conflicts, but where conflicts occur in the schedule they have been made between subjects which students are least likely to take.

A valuable feature of this course will be a series of special lectures which have been arranged for. Six of the leading agriculturists of Ohio have been engaged to deliver a course of five lectures each, to the winter course students. These lectures are to be given at an hour so that they will not conflict with any other work in the course, and doubtless will be a source of much inspiration to the students. The lecturers who have been engaged for this work are: Director Thorne, of the Experiment Station; Dr. Chamberlain, of the Ohio Farmer; Mr. Agee, of the National Stockman and Farmer; J. E. Wing, of Mechanicsburg; H. P. Miller, of Sunbury, and O. E. Bradfute, of Cedarville.

In establishing this course it has not been the intention to replace any of the work that is now offered by the College of Agriculture, but rather to supplement it, and to offer an opportunity to those who have been unable to avail themselves of the courses that are now given in our college. For some time it has been felt that it would be desirable to establish such a course, but the authorities have hesitated on account of lack of accommodations. Owing to the appropriations that were made by the last legislature, which provide three new buildings for the college, it was deemed wise to establish the course this winter. However, it may be that it will be necessary to suffer some inconvenience this coming winter owing to the fact that the new buildings will not be ready before another year.

It is urged that all who are expecting to enroll in this course should send in their applications at an early date, so that we may be able to afford the best accommodations possible for those who come.

Dean of the College of Agriculture.

The Chrysanthemum

Since 1879, when the first seedlings were introduced into America, interest in this flower has been rapidly increasing until now it is the favorite flower of its season.

By planting seeds of the most promising sorts new varieties are obtained. Plants designed to be used as parents should be grown in small pots and when the flowers develop they should be placed in a dry room where there will be an abundance of sunlight and air.

The largest and most perfect flowers should be selected and all the others should be removed as soon as they appear. When the flowers fully open the rays should be cut with a pair of scissors just above the stamens and pistils.

While the seed is ripening the plants should be kept perfectly dry and if proper surroundings cannot be given to the plants, the stems may be cut off and placed where they will not be in moist air. The seedlings after being potted off, require the same care as those grown from cuttings.

PROPAGATION BY CUTTINGS.

The time for cuttings is from the middle of February to the middle of June. If the flowers are wanted for decorative purposes, cuttings made in March would be the best.

The roots are saved from November until ready for the cuttings in March. The roots should be kept in a cold frame or in boxes in a cool place, where they will not freeze. Three or more crops of cuttings can be made.

CARE OF THE PLANTS.

Chrysanthemums are better grown in benches. The cuttings should be between two and a half to three and a half inches long, with the leaves on the lower half removed and the other leaves should be reduced to one-half the size. They can be rooted in pots or pans but flats are generally used in which the cuttings are inserted in one-half their length about two inches apart in the rows. Bottom heat, though it will hasten their growth, is not necessary. The temperature of the sand should be about 50 to 55 degrees, while that of the house should be ten degrees lower so that the rooting of the cuttings will be hastened and the growing upper portion of the cuttings will be retarded. It usually takes about eighteen to twenty-five days for slips to root.

If large blooms are desired they should be planted singly in small pots containing a mixture of sand and compost at the bottom and sand at the top. When the roots are about half an inch long they should be potted in three-inch pots with a mixture of half fibrous loam and half sand. When the roots fill the three-inch pots they should be repotted into three and a half inch pots. When the pots are filled with roots the benches should be gotten ready and planted which for the first batch should be in July. If the plants are to be kept in pots they can be continually repotted as soon as they fill the pots with roots. The average blooming pot is from six to ten inches in size.

The rows are generally from ten to twelve inches apart and the plants about eight inches apart when three or more flowers are to be grown to a plant or six inches each way if the plants are to be grown to single stem.

The plants should be well watered and while young should be syringed often and the roof shaded.

If more than one flower is desired from a plant the tip buds should be pinched out to make them branch. Unless several flowers are wanted the side buds should be rubbed off at once. Three stems are usually left to a plant unless high grade blooms are desired.

TRAINING AND TRELLISING.

The best of the many methods is to run wires above each of the rows and cross them either with raffea or twine. After they have grown somewhat another layer of wire and twine or raffea should be put up. As a rule three layers are put up by gardeners though some prefer more and others less.

After the roots have a good start an application of either cow or sheep liquid manure may be applied once a week until the buds open enough to

show the color of their flowers. There is danger of having too soft and watery a growth from having too much nitrogen in the manure combined with too large an amount of water.

This should be checked immediately by decreasing the amount of nitrogen in the manure and withholding the water.

When the plants are blooming keep the soil a little dry which will prevent them from maturing so rapidly. The time of cutting is indefinite; for example a bloom may be fit to sell but if it were not to be sold it could be left on the plant for another week or even longer and might then be ready to be picked. The season commences the fifteenth of October and the twentieth of November is considered the finish of the season.

TAKING THE BUDS AND DISBUDDING.

Taking is the word applied to the selection of the bud or buds upon a plant that are to flower after which the others are removed. The bud at the end of a shoot is termed the crown bud. If a crown bud does not appear before August 15, or if they are taken sooner they do not make good flowers, it would be better to leave only one leaf bud from which a shoot will develop and can be trained and a later crown bud, that it may form, can be taken. This, later in the season, may produce a terminal bud. Usually it is better not to take any buds for the early sorts, until the last of August and from that time until the middle or the last of September for the late kinds. M. E. Corotis.

The Outlook for Apple Growing

The apple is the most important fruit grown in the state and in 1899 Ohio ranked third in the number of bushels grown, being preceded by New York and Pennsylvania in the order named. During this year these three states produced over one-third the total apple crop of the United States. The total number of bearing trees in Ohio in 1899 was 12,952,625 and the total crop for the same year amounted to 20,617,480 bushels.

In spite of this enormous total yield reported for the state, Ohio has a very small number of strictly commercial apple orchards. One can almost count on the fingers of his two hands the apple orchards in the state that have been sufficiently successful in a commercial way to attract any attention whatever, and thousands of bushels are shipped into the state each year to supply the demand—a demand that is constantly increasing every year. Where, you ask, are all these apples grown if there are few commercial orchards? The reply is that they are grown upon the farms of the state as a secondary crop, purely incidental, in most cases, to the regular farm operations. Nearly every farm has an apple orchard of greater or lesser extent that in most cases has been allowed perfect freedom in taking care of itself since planting. If insects and disease have not entirely destroyed the trees, a fair crop of inferior fruit is usually secured in good seasons. If the crop is a failure little attention is given to the fact, because the orchard had not been depended upon to bring any income to the farm. There were only six counties in Ohio in 1899 that did not report more than 100,000 bushels of fruit, yet it would probably be a safe estimate to say that not more than ten per cent. of the enormous total crop reported for the state ever reached a market. A very large part of the crop reaching market was inferior in quality and brought very low prices. The re-

mainder was either consumed upon the farm or permitted to go to waste there.

There can be no doubt as to the constantly increased demand for apples. There are not only more people to eat apples but each person is consuming an increasing amount every year. People are just beginning to appreciate the value of the apple as a food. The fact that it is the most cosmopolitan of all our fruits and can be successfully grown over a wider range and under a greater diversity of conditions and can be so handled and cared for as to be obtainable in good condition the year round makes the apple the "king of fruits." There can be no doubt but that people generally would be much better off if they ate less meat and more fruit and the best of it is the people themselves are coming to realize it. While other fruits will find an increasingly popular place in the dietary of the people during their seasons the apple will always remain the fruit of the temperate zone.

Not only is the demand for apples rapidly increasing at home but foreign markets are taking large quantites of American apples every year and the export trade is rapidly increasing. The markets of the world are open to the American apple grower and he is able to successfully compete not only with the growers at home but with those of England, Germany and France in their own markets.

The great range of markets available to the apple grower has been made possible very largely by the increased facilities for transportation. Not only has water, steam rail and trolley brought us into easy communication with every corner of the country but all these methods have been vastly improved and distant markets are many hundreds of miles nearer the grower than they were a few years ago, so far as time required to reach them is concerned. Now the growers in California and Washington may and do compete with the growers in New York and Ohio, and apples from Missouri and West Virginia may be seen side by side in the same markets.

The apple is preeminently a long keeping fruit and is not perishable in the same sense that the strawberry, the cherry, the peach or the plum is perishable. These latter must be picked within a certain 48 hours (usually a shorter period) or the quality of the fruit materially suffers, for market purposes at least. If the market price is 25 cents or $2.50 per bushel the produce must be sold and sold immediately. At most, the fruit can be held for only a few days. With the apple just the reverse is true. Some variety of apple can be grown in almost every state in the United States that, with our modern methods of cold storage can be kept almost, if not the entire year. The methods of storage perfected within the last few years makes the apple grower in great measure independent of the market. If prices are not satisfactory at picking time the fruit can be placed in cold storage and placed upon the market any time from four to eight months in the future, when prices will warrant its sale.

Methods of packing and placing the fruit upon the market offer great opportunities to the apple grower. By far the greater part of the apple crop is marketed in barrels, and for long distance shipments this style of package will probably remain the standard for many years to come. For closer markets the bushel box is coming to be used quite extensively. There would undoubtedly be a demand for a still smaller package such as could be car-

ried by the purchaser without inconvenience, especially in the home markets. It would be easier to sell three bushel boxes packed neatly and attractively for $4.50 than it would be to sell a barrel for $3.00 and it would be easier to sell four pecks at 50 cents each than a bushel at $1.50. Proper packing in small packages, made attractive and displayed in an attractive manner will very materially increase the demand for this fruit as well as the price received for the same.

There are many places in Ohio where soil, surface drainage, air drainage, market and transportation facilities are almost ideal for the growing of the apple in a commercial way. Varieties suitable to almost every type of soil, every climate and every market demand can be readily secured. The state is full of excellent home markets of good size and the transportation facilities are not excelled by any other state in the United States. With reference to the larger markets the state is also located centrally and within easy reach. While the insect and fungus enemies of the apple are troublesome and are controlled at large expense, no other expenditure in connection with the orchard pays so well. Insects and diseases now unknown will doubtless make their appearance but the alert and energetic grower will be benefited rather than injured by such enemies, because they will force the less energetic and less resourceful grower out of the competition.

Where conditions are favorable, then, we must conclude that apple culture offers as good, if not better opportunities for a satisfactory income than any other branch of horticulture. The industry is only in its infancy in the state and within the next fifty years thousands of acres now growing general farm crops at little profit will be successfully and profitably devoted to the growing of this splendid fruit.

V. H. Davis.

A Glance at Burbank

Sometimes I wonder to what extent we should take the advice of our friends, cousins, uncles and who not, even our superiors in regard to our life work and the program to be followed for its accomplishment.

If we have a definite aim in view, a chosen profession, a something which would be above anything else of which we have knowledge, it is good; a great problem has been solved which many a person often times our brightest classmate, is pondering.

There may be several lines of work in which we bid fair to succeed and just here is where our ideas must predominate. Some one may show us where we would succeed in a certain line and conscientiously urges us to keep at it. But this is not our ultimate aim. There is something else which we can see, a higher success than that which our friends see.

It is true we need all the help we can get from our superiors in preparing us for our future work, when we leave the harbor in which we have been anchored and stem the tide.

So we must learn the meaning of the word self reliance and learn to trust ourselves. You will recall with me Emerson's expression:

"In every work of genius we recognize our own rejected thoughts. * * * Tomorrow a stranger will say with masterly good sense precisely what we have thought and felt all the time, and we shall be forced to take with shame our opinion from another."

We see with what wonderful consistency Mr. Burbank, the wizard of the

plant kingdom, clung to the star which was fixed before him. More than once he was face to face with starvation. Few men have undergone more and greater hardships than Luther Burbank. Early in his life he showed evidence of becoming a great inventor and his friends and employers urged him to set about such a life. But he disregarded his friends this time as other times later in life—and who was right?

After going to California he built up an extensive business as a seedsman and nurseryman. The business yielded him a handsome income and yet he became less and less satisfied with the outlook. His business prevented him from accomplishing his life work as a plant breeder.

A day came when he decided to give up his nursery business and devote his entire time and energies to plant breeding. As soon as his friends and relatives heard of his decision they entered vehement protest. Could a man do anything more foolish than to abandon a business that was netting him ten thousand dollars a year, to engage in another which meant financial ruin? He had heard the same reasoning when a boy. But this time again he followed his star—and who was right?

Now we see him alone in his line of work, the leader of all men as a plant breeder.

Men have tried every way to prove him a fakir and unscientific but they must all hang their heads in shame as they look on his results.

Already millions of dollars have been added to the national wealth because of his improved fruits, and the whole world has been brightened with his flowers.

J. H. Gourley.

Crop Rotation

By crop rotation is meant not only a change in crops grown, but a regular change or that different crops shall be grown in more or less regular order through a series of years and finally getting back to the starting point. It should be understood that this practice is not based on chemical or botanical considerations but is a relic from the village communities.

It is true that several ancient writers held views on this practice which were correct, in accordance with principles now known to be true. Varo, Cato and Virgel also tell of alternate cutlure of gains and legumes, but the practice of rotation as known today seems to have been derived from the "common" field of village communities where rotations were made necessary by the system of landholding then in prevalence. Starting in this way the continuance of systems of rotation has depended upon established customs made rigid by legal forms. Perhaps the finest approach to a rotation was to abandon a field after it had been cultivated for some years and allow the natural vegetation to cover it, the decay of which would tend to increase its fertility.

The old nomadic tribes grazed the land until it was bare then moved to another site. But as people became more civilized the land was divided up, and the owner raised crops just as he desired. Here it was found that if a certain crop was raised on the same land for a number of times in succession that the yield was not what it ought to be and this brought about resting of land or fallow, which is rotation to a certain extent.

Reasons for crop rotation may be classed under three general heads. 1. To avoid exhausting certain ingredients

in the soil. 2. Different ranges of root feeding of the various crops. 3. For convenience in arranging the work, and to lessen the risk of the farmer.

All crops are composed of the same elements but not, however, in the same proportion and the amount of these different elements which they use, varies greatly in the various crops. On the other hand, the proportion of elements they leave in the stubble or in the soil varies greatly. The more stubble left on the soil to be turned back into it the greater will be the quantity of the elements contained in that plant, returned to the soil. An ordinary grain crop will take from the soil much less potash than will a crop of clover, potatoes, or any of the root crops. Oats will take more potash than will one of wheat or Indian corn. Clover takes more phosphoric acid than a grain crop, while mangles or turnips take much more than clover. Therefore, a decided advantage is gained by alternating those that take less with those that take more. The clover sends its roots farther into the soil than does a turnip. Not only does clover aid in maintaining the fertility for plants with shorter roots, but the greater number and size of them aid materially in the soil by penetrating to greater depths than other plants, and also the material it furnishes in the form of humus. It keeps the soil loose and porous and permits the circulation of air, and capillary action for moisture and the penetration of both heat and light.

A stronger reason for including clover among the rotation crops is because it and other leguminous crops have the power to assimilate greater quantities of nitrogen than the cereals, grasses and roots. And it also has been shown that they have the power of assimilating free nitrogen from the air, a power posessed by no other plant. This is thought to be brought about by the action of minute organisms which cause tubercles to form on the roots of the plants of this order.

Although a crop of clover will contain a much greater amount of nitrogen than a crop of wheat, oats, or corn, it leaves so much nitrogen in its roots and stems that the soil usually contains more of this one element than it had before the clover was grown. Clover may be induced to grow on a field that would not grow wheat on account of the lack of nitrogen and by turning under the stubble of the clover the soil is fitted to grow a good grain crop. A great loss of nitrogen from the soil is due to drainage water, and by its being washed into an open subsoil. This is much greater where the soil is naked than where vegetation is present. The roots of growing plants take up the nitrogen and make use of it by building it into plant tissue and holding it from being lost. This is especially true of the red clover and all other deep-rooted crops, and for this reason roots of clover are called nitrogen "traps."

Crops that grow through the whole summer can make use of more nitrogen than those that grow only a part of the season. In this respect Indian corn has an advantage over other small grains, also, of the grasses over wheat. For this reason it would seem that plants of long seasonal growth could thrive well on soils with a smaller supply of available plant food than those of a shorter period of growth.

In soils of loose texture and in loose subsoils it is a good plan to follow the summer crop by a fall cover crop, as this prevents the soil from washing, and prevents loss of nitrogen already there.

The second reason for rotation of crops, different ranges of root feeding of various crops, is very evident if the roots of the plants are examined. Some plants have long penetrating roots, others long branching roots, and still others short branching roots, and for this reason the elements are exhausted from certain regions or depths of the soil if any one of these crops are grown in succession for any length of time. This makes it necessary to rotate with crops of different root development.

The convenience of work and the risk of the farmer is very important in the question of crop rotation. If the farmer grows only one crop on his farm his risk is much greater than if he grows a number of crops, for a loss of that one crop means an entire loss of labor, time and use of land. The convenience of work demands that such crops be raised so as to divide the work more evenly over the whole year. It will not cost so much for labor and machines to cultivate and harvest crops maturing at different times during the season as it would in raising large crops maturing at the same time. By rotation less acreage can be grown of each crop, less men and machinery required and expenses would be lessened.

In summing up reasons for rotation of crops one would find: (1) It prevents exhaustion of certain elements in the soil. (2) Less manures and fertilizers need be applied. (3) Land is cleaned of weeds. (4) Farm labor is more evenly divided throughout the year. (5) It furnishes a continuous supply of crops to feed or sell. (6) Some crops prepare soil to some extent for others. (7) Destruction of crops by insects or fungi is more or less prevented and (8) by this practice crops are more vigorous.

The kind of crops to use in rotation depends upon kind of soil, climate, number and kind of live stock kept, and their management, etc. Upon the soil depends the success of crop rotation. For certain crops grow best in certain soils; e. g., potatoes grow best in peat soils, legumes in calcareous soils, while loams or deep soils will produce almost any crop; wheat or beans do well on stiff clay. So it will be seen that in making up a rotation, crops must be chosen that will do best on the soil where the rotation is to be practiced. The climate determines what crops shall be grown as to difference in temperature, dryness, and moisture. Therefore, crops suited to one locality would not grow well under other conditions; e. g., alfalfa is a very successful crop in the middle west and can generally be harvested without wetting, while in Ohio it is very difficult to harvest a crop without having it rained upon.

As to the kinds of live stock kept, cattle require the raising of more forage plants, sheep, more pasturage and roots, horses, pasturage, grain and dry forage crops. And if beef cattle are raised they require more grains and dry feeds than if dairy cattle are fed.

If live stock is not handled, and the crops are sold, then crops must be grown that will satisfy the demands of the market.

If the land is drained, the number of crops that can be grown is much greater than where it is not drained, and if the land is weedy such crops must be chosen as will permit of the cleaning of of the land.

As to the system of crop rotation there are a great number of systems, but no matter whichever system is chosen it must be changed to suit the requirements of the location where it is to

be carried on. There are two course, three course, four course, five course, six course, and seven course rotations. But there are no fixed systems of rotation in this country as are found in Great Britain. In this country each farmer will generally adopt a system suited to the conditions of his particular location.

Of these various systems the three course system is perhaps the most important, especially in this country, for from this our many other useful systems have been derived. This three course system consisted of fallow, grains, and clovers, and is the same as the old three field course of the Saxons. It requires little capital and enables quick returns; but on the other hand does not permit a great number of crops. From this have been determined the grass rotations, which were introduced in sections fitted for grazing, and the idea is to have pastures alternate with grains. This practice answers very well where the moisture is sufficient for grasses to grow readily.

In New York State a common course is—corn on sod, oats, wheat, clover, and timothy. Another is, oats, potatoes, manured, wheat and grass. A rotation common in Pennsylvania is corn on sod, oats, wheat and grass.

In Alabama a very common rotation is corn, wheat three or four years, cotton five or six years, and clover. In Ohio the most common rotations are corn, wheat, and clover, or, corn, oats, wheat and clover, or, corn, oats and clover, and still another is corn, wheat, clover and potatoes. These various rotations are each best adapted to certain regions.

When the course is wheat, clover, and potatoes all may be obtained from one plowing; or the same may be true if corn is used in place of potatoes.

The course of rotation may be changed from three to four years by seeding to grass for another year, and, where the land is hilly, a long rotation is much better, for it avoids so much cultivation and prevents washing of the soil.

In this country clover forms one of the most important crops in rotation. It not only furnishes abundant hay and pasture, but it leaves a larger quantity of vegetable matter for soil, in its roots and stubble. It contains much nitrogen and mineral matter brought up from below, and by the decay of its roots in the soil it increases the humus, and betters the physical condition. Other grasses are good and when pastured, together with the animals on pasture, increase the fertility. Permanent pastures are not so common here as in England, and are generally included here in the rotation.

Indian corn is not as exhaustive as it was formerly thought to be, which is explained by the facts that it has a longer period of growth than other small grains and can make use of the nitrogen made available through the summer and early autumn. It has wide-spreading roots, and in sections where it is raised so extensively only the grain is removed from the soil, the stalks, blades and roots being turned under and consequently the fertility is not decreased to such an extent as the yield might suggest.

Oats while considered an exhaustive crop to the soil, is the only crop where the application of manures or fertilizers is injurious. The application of either of these causes an extensive growth of straw and falling off in the yield of grain.

Even in regions where grain is grown to least extent it is found beneficial to alternate corn with other small grains; and with a careful rotation, especially

where clover has a prominent place in it, land of fair quality if well tilled may be cropped for years and not show much decrease in yield. Rotation and tillage alone will not keep up fertility, for it will decrease some time and will require manuring, but if a good rotation is practiced, land is well tilled and manured liberally, these will be the best security against ultimate loss.

Geo. A. Crabb.

Forestry in Ohio

S. B. STOWE.

We know that forests in Ohio are becoming a thing of the past. There are but few land owners in the state who have taken special care of their wood lots. But interest has become such that the establishment of a Forestry Department at the Station has seemed advisable; so from now on it will be possible for farmers to get information and assistance in the planting and care of forest trees and management of the farm wood lot.

The western states began this work first and we can draw somewhat from their experience. In 1871 the Illinois Station set out thirteen acres of the various indigenous trees. They were cared for until 1893, when they reported in a bulletin somewhat as follows: They believed that from a financial standpoint alone this planting was unprofitable; that the figures given by many theorists are extravagant; that the danger of fire was too great and therefore forest planting offered but little inducement. They, however, did recognize that the beauty of a woodland was a source of enjoyment; that temperature was equalized and winds checked; and that there would be fewer floods.

At the Kansas Station results were somewhat different. The catalpa plantations were the most profitable investments. Attention is often called to the Yaggy plantation of 500 acres, from which the posts sold for $267.15 per acre, ten years after planting. This is one of their best examples, and it set the energetic farmers of Ohio to thinking. There are quite a few locust and catalpa plantations in this state that have been cared for, and are now yielding a good income, the investment being profitable in most cases. Within the last three years many plots of these trees have been planted out under the supervision of our station. The work is being carried on at the present time and the interest is such that a supply of post timber is probably insured.

Considering that thirteen per cent. of our state is in forest, and that it is probable that thirteen per cent. more could profitably be planted back to trees the Ohio Station has been led to take up a forest study and survey of the state. In every county there are many acres covered with worthless species; in others, the woodlots are so thinned that grass has crowded out the seedlings and pasturing is a prevailing practice. The profit from such methods must be small and not what it can be made to be.

The average farmer does not like to be without a woodlot, but there seems to be much ignorance among the masses as to the best way to produce forest conditions, that the suggestions of our investigators will be of much consequence. One summer has already been spent in the field and as the years go by an increased experience will make the care and maintenance of the farm woodlot a much easier task. We are looking forward to the time when a woodland in Ohio will be a source of income and pride.

Beautifying Rural Homes

A number of factors contribute to the happiness of every human being. The amount of happiness, however, contributed by any one of these factors varies with different individuals. Thus some would say they would be most happy if they had plenty of money; others would lay the greatest importance upon a good education. Yet, however varied we may be regarding that which contributes most, we can agree that there are a few things common to all of us in adding to our pleasure. Probably one of the most important of these is the pleasure derived from living in a nice, cozy home in the midst of beautiful outdoor surroundings. This is evident from the amount of money spent by the wealthy, and the constant pains and effort spent by those of less means, especially in our cities.

From the fact that money is spent in cities in beautifying home surroundings, and sometimes to a lavish extent by the extremely wealthy, it appears as if the people in the country who are in moderate circumstances think that nice homes and well-planted lawns are reserved only for city people and those possessed of wealth. They fail to realize how much better situated they are and how much cheaper they could secure these apparent luxuries than their city neighbors if they would give it the proper study and attention. How often do we hear country families, many of whom have money lying idle in the bank, almost go into ecstacies over some of the beautifully arranged city homes, when they have almost at their very doors materials which if properly arranged would produce just as pleasing an effect.

Thus we see that the lack of beautiful homes in the country is not due to the people's not appreciating the beautiful nor in not having the materials, but rather to their small appreciation of the things in nature about them and of their value for ornamentation. Too many have the false idea that unless a plant has some peculiar diversity from other plants or unless it has been secured from some highly advertised seedsman, it is not entitled to a place in ornamental planting. It has never occurred to them that some of our most common trees as elm, ash, maples, magnolia, honey-locust, and many others, have elements of beauty in them comparable with almost any of the rare or introduced species. Neither do they realize that many of "The wild shrubs which skirt the waysides have a beauty beyond that of the cultivated exotics in shaded gardens." Among these may be mentioned the dogwood, elders, Judas tree, native plums, cherry, the sumach, roses, and many others, some of which are available in

A PLACE TO STAY

almost every rural community. Then, again, are the many native herbaceous plants which are so often looked upon as obnoxious weeds, but which in reality possess even more beauty than many of the introduced and high-priced species. In this list we have the anemone, columbine, various asters, the wild sunflowers, phlox, goldenrod, ferns, blue violet, trillium and many others. Then, to make

the home plantings complete a few hardy climbers may be needed in trailing over rocks, or down sloping banks, covering unsightly objects, and in shading and adorning porches. Here, again, nature

A HOME

supplies some excellent material in such as the native bittersweet, morning glory, Virginia creeper, climbing cucumber and others.

It would not be necessary, however, in these days, for people in the country to confine themselves to the native varieties, for so many introduced shrubs and herbs having ornamental value have been here so long that they are as common to us and as easily secured as our native species.

Before we can properly select these plants we must cultivate a high appreciation for the beautiful in nature. It has well been said that good taste in landscape art will yield its possessor as much pleasure as good taste in literature, music and the other fine arts. It may also be said that good taste in landscape art may be as easily attained and is as good an index of culture and refinement as it is in the other fine arts. Students who spend four years in college, and especially those who are expecting to return to the farm, are certainly neglecting an important phase in their education if they do not take advantage of the opportunities offered in their schools for the cultivation of an appreciation for the beautiful in nature. These opportunities present themselves either by means of professional instruction along these lines, or by careful observations of those surroundings in which the most pleasing landscape effects are produced. Should every agricultural student do this and seek to apply his training to his own home upon the farm it would certainly be a great step in elevating people's ideals regarding home planting, and would also reflect much credit upon his Alma Mater. O. J. B. Smith.

The International

The beginning of this great live stock show may be traced to the meeting of the National Association of Live Stock Exhibitors, held at Springfield, during the Illinois State Fair, in the year 1899. The need of a great national show that would bring into competition the choicest animals of the States and Canada had long been felt. The time was ripe for such an enterprise. No dissenting voice was raised to oppose the project, but on every hand ambitious stockmen were impatiently waiting for an opportunity to place their favorite animals, those winnowed from the fair and show circuit of the fall, into a great arena that would serve as a climax to all exhibitions held earlier in the season. There were two things lacking: a pavilion of sufficient capacity to stage the show and money to finance the enterprise. The Union Stock Yards Company supplied what was lacking in buildings and money. A huge pavilion was erected in Dexter Park. This large building was nearly an eighth of a mile in length, contained accommodations for 488 cattle and possessed a seating capacity of 3500. Supplementary to this main building there

were buildings for the horses, sheep and swine, with a capacity for 1200 sheep and 1200 hogs, and almost an unlimited stabling capacity for horses.

The magnificent sum of $70,000 was offered in prizes. Never before in the world's history had such a princely ransom been given, but the exhibit was fully worthy of the prize.

Never a doubt had existed in the minds of the managers as to the capacity of the pavilion to contain the crowds, but its inadequacy was quickly demonstrated. The seating capacity was taxed at all times and hundreds of disappointed spectators were turned away for lack of space. The great pavilion has been enlarged and improved from time to time until it now has an arena 100 ft. x 236 ft. that is entirely surrounded by a promenade 14 ft. wide. From the promenade rises a row of boxes and then the seats stretch tier above tier far up the wall. It would seem that in seats, boxes and arena promenade, accommodations for 10,000 people might be found. Yet the great crowds that surge like a sea, blocking every entrance to the promenade, during the evening performances, repeatedly proved this vast amphitheater to be too small.

A statistical summary of the entries, as given by the Breeders Gazette, for the year 1905, may serve to give an idea of the strength of the show:

Breeding cattle	790
Fat steers	265
Breeding sheep	452
Fat sheep	380
Fat swine	356
Horses	570
Total	2813

Where in all the world is there a show that brings forth animals in such numbers and of the best types and qualities now obtainable in Europe or America? This magnificent display of horses, cattle, sheep and swine, embodying all of the best that the breeder's art has been able to produce, brings visitors from all parts of the United States and Canada, to Chicago, in such numbers as to pack the hotels to their full capacity and cause the turnstiles at the show-yard gates to click up an attendance of from thirty to forty thousand daily.

The great dailies of Chicago were slow to awaken to the fact that a show of paramount interest was being held in their midst, but it is gratifying to know that the awakening has come, and now details of the show are furnished in very liberal fashion.

The agricultural colleges are plainly a factor at the International. Many practicable stockmen were wont to heap contempt upon our agricultural colleges, the live stock they maintained, and the Professors of Animal Husbandry also came in for a few knocks, but the prize-winning stock that has come from these same institutions has brought the aforesaid stockmen to a realization that the agricultural professor, with all of his much-laughed at theories and lack of practical knowledge, is not a safe man to come into competition with in the show ring. Most exhibitors have borne the success of the colleges with good grace, but a few have sought to have the college stock excluded on the grounds that it is unfair for an individual to have to compete with institutions supported by public funds. We shall not enter into a discussion of the merits of this objection to college stock, farther than to say that the object of the show is to educate by bringing forth the best and that the excellence of the display would be materially lessened, especially in the fat stock classes, if the college stock should be excluded.

I. G. McBETH.

Horticulture and Forestry Club

Early in this term a meeting was called for the reorganization of the Horticultural Club. The name was changed to the Horticultural and Forestry Club of the Ohio State University, having for its object the fostering of interest in horticulture and forestry. M. E. Corotis was elected president for this term, O. B. Smith, vice president, M. C. Thompson, secretary-treasurer.

At the first meeting, Prof. Atwood, of United States Department of Agriculture, gave a very interesting talk on the history of agricultural experimentation in this country, with special reference to the Ohio Agricultural Experiment Station, when it was first organized. Prof. Lazenby spoke on "Why We Are Interested in Horticulture."

At the next meeting Prof. Price gave an interesting talk on "Peach Growing in Central Ohio." A. H. McCray gave a talk on "Catalpa Growing." H. A. Imlay on "Commercial Chrysanthemum Culture." L. R. Onrubia gave a very interesting paper on the "Flora of the Philippines." This is a subject of special interest to all and was very much enjoyed.

The last meeting was held October 29. Prof. Davis gave a good talk on the "Present Outlook of Apple Culture in Central Ohio." Mr. Smith spoke on "Blackberry Culture." Mr. Johnson, on "Horticultural News." Prof. Griggs spoke on the very interesting subject, "The Attitude of Americans and Foreigners to Floraculture." He spoke of the knowledge the Porto Rican children have of the wild plants as compared to the lack of knowledge on the part of the Americans. He also emphasized the fact that Americans are behind many European countries in the matter of good floral magazines, etc.

Meetings are held the second and fourth Mondays of each month at 6:30 p. m. All interested are invited to attend.

H. C. Thompson, Secretary.

Experiment Station Notes

S. B. STOWE.

Director Thorne continues his valuable work on soil fertility. The season for the most part has been good, and the results will add much to our knowledge upon this question. The series of plots upon which these tests are made should be the pride of every Ohioan, as there are only a few of similar nature in the world.

L. H. Goddard now holds the position of Assistant Director; the office of Vice Director has been dispensed with. Mr. Goddard is also the head of the Department of Co-operative Experiments. Mr. M. O. Bugby, '04, O. S. U., is the assistant in this, and reports a good year.

The Department of Animal Husbandry is under the care of Mr. B. E. Carmicheal as chief. Mr. Carmicheal is a graduate of Illinois and his work at our station is welcomed by Ohio people. He has been carrying on a feeding experiment with lambs. One lot was fed corn and a leguminous hay and the other corn with high protein concentrates. His results indicate that corn with a legume roughage is the best. Two lots of hogs were fattened on bluegrass, one lot being fed corn alone and the other corn and skim milk. The amount of corn fed and cost of production was much less for the second lot. The gains were much greater. Dairy tests and steer feeding experiments are in progress at the present time.

We regret to announce the sickness of Professor Selby of the Botanical De-

partment. He has left for western U. S., and it is hoped that he will speedily recover. This department has been carrying on spraying tests for late potato blight. The work was co-operative and was confined to the northern counties, especially Geauga, Portage and Trumbull. Returns from this work are not all at hand yet so results cannot be given.

True Houser, Assistant in Plant Breeding, is doing some interesting work with tobacco at Germantown. He is working with corn, wheat and oats also.

Three of the Station men were married during October. They were Mr. W. H. Kramer, the Bursar; Mr. C. H. Kyle, Assistant Agronomist, and Mr. J. S. Houser, Assistant Entomologist. Kyle and Houser are Kansas boys. Ohio should be proud of these men and we are glad that they are going to make our Station their home.

The Entomological Department has has been carrying on spraying tests for grapeberry moth at Kelley's Island. These tests were co-operative.

In this connection we make mention of Bulletin 177 lately issued by this department. It is one of the most complete works on Hessian Fly in Ohio that we have seen. The life history, the egg laying records for the last two years, observations on different varieties of wheat, the parasites, and the remedies are worked out quite thoroughly. The fact that it applies to Ohio conditions makes it very valuable.

The Station has had a very successful season at the fairs. A car was chartered for the trips and the exhibits from the various departments were convincing and instructive. The State Fair was the first point visited and throngs of farmers were always studying the well-prepared exhibits before them. Other fairs visited were those of Darke, Richland, Putman and Fairfield counties, finishing the season with a round-up at the Sub-Station, Carpenter, Meigs County. This feature is taking well with the farmers and is growing in popularity.

Plans are well under way for the erection of a building for soil work. We are glad to see this and are anxious for information regarding Ohio soils. An addition is being made to the Horticulture building; this will be used for offices. A spray house was recently finished at the South Farm.

Prof. W. J. Greene and Mr. Edmund Secrest are making a study of forest conditions in Ohio. This department is just recently organized and note is made elsewhere regarding it. Mr. Secrest is from Kansas; he has had over three years' experience in the Bureau of Forestry and is certainly well fitted to study this problem in our state.

The Chemistry Department has been enlarging its work quite rapidly. Mr. W. F. Pate from Illinois Station is one of the new assistants, and is going to make a special study of Ohio soils. Mr. Show of Nebraska and Mr. La Shell of Case are other new men in this department. Mr. F. A. Welton has been making some very interesting studies on lime requirements of alfalfa. At present he is spending his vacation in Kansas and Colorado.

Alumni Notes

Garfield Wilder, '06, is managing a dairy farm owned by John D. Rockefeller in Lorain County. Mr. Wilder judged dairy cattle at the Lorain County Fair.

Fred Andres is buying cattle for his brother in Lorain County.

F. W. Rane, '91, Professor in Horticulture in New Hampshire Agricultural College, has resigned to accept the position of State Forester of Massachusetts.

E. J. Riggs, '95, and R. W. Dunlap, '95, will be on the State Farmers' Institute force this winter.

C. A. Miner, '05, is a practical nurseryman at Fresno, Cal. He is thoroughly in love with his work and has every assurance of a happy and prosperous career. He recently sent the Department of Horticulture some interesting statistics showing the monthly growth of various kinds of nursery stock under the favorable conditions of one of the noted fruit centers of California.

Herman A. Clark, B. Sc. (H. & F.), 1902, after spending two years in the service of the U. S. Department of Agriculture, has now become a practical farmer and fruit grower in Medina County. On the 9th of last October he married Miss Adelaide Dawley, and spent a short time thereafter in visiting friends in Columbus and at the University.

Ira J. Condit of the class of '05 (Horticulture and Forestry), is now connected with the Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C. He recently sent Professor Lazenby a box of the fruit of the "Maidenhair Tree" or Japanese "Ginghko." Although there are several fine specimens of this tree on the University campus, none of them have fruited.

E. C. Cotton, a graduate of the Department of Horticulture and Forestry in 1905, after a very successful term of service as nursery and orchard inspector in the State of Louisiana, has accepted a position in the University of Tennessee at Knoxville.

E. D. Holl, '06, is manager of the Pure Milk Company plant at Bellefontaine.

William J. VanMeter is doing expert dairy work for the Wawa dairy farms in Philadelphia, and gets $1500 a year.

The seven men who graduated from the Dairy Course in 1906 have all secured good positions.

William Rehl has a position at Zanesville.

J. W. Sutton has bought a controlling interest in the Muskingum Creamery in Muskingum County.

J. Perkins is making butter for the Pittsburg and Ohio Butter Company in Pittsburg.

Henry I. Janson is operating a butter factory at Maddock, North Dakota.

K. L. Pulsifer has bought the home farm in Medina County and is now operating it.

C. W. Barret is managing the Spring Valley Creamery for the Conover Creamery Company.

College News

The annual meeting of the American Association of Agricultural Colleges and Experiment Stations was held at Baton Rouge, La., November 12-15. It was attended by Dean Pric as delegate from our institution.

Miss Laura Hill, former stenographer in Dean Price's office, who htas been in Colorado for the past seven months, will return to take up her work again soon.

George S. Mills of Toledo has submitted to the Board of Trustees the completed plans for the new Cattle Barn. He has been authorized by the board to prepare at once plans for the Live Stock Pavillion and for the Horse Barn. The building of the Cattle Barn will be postponed until these plans are completed in order that the appropriation may be divided proportionately among the three buildings. The buildings will all be put up next summer.

Applications have been received from several railroads of the state to run special agricultural trains as has been done in some of the western states. The proposition is being considered by the authorities of the college, and it is probable the college in connection with the state experiment station will arrange to run such a train.

The American Rambouillet Sheep Association in the last annual meeting agreed to have the Rambouillet sheep at the International Exposition judged by a committee of three men with a view of serving for a term of years for the purpose of establishing a type that exhibitors might have a more definite aim in preparing for show. This committee consists of Professor Plumb, Professor J. H. Skinner of Purdue, and Professor W. C. Coffee of Illinois University.

The University purchased two Angus cows of O. D. Estle, Clifton, Ohio, and an Angus cow and heifer calf at foot of R. J. Cory, Clifton, Ohio. These were the choice cows of the two herds.

The University bought a Yorkshire boar pig of S. M. Dickerman & Son, of Mallet Creek, Ohio. The junior member of this firm was a former student at the Agricultural College.

Live stock entries for the International from O. S. U. to be held in Chicago, December 1 to 8:

With one exception the cattle exhibits are all steers, and the pigs are all barrows.

Steers (1) Black's Ohio Champion, Grade Hereford, two-year-old.

(2) Rodger of Brookside, Pure Bred Galloway, two-year-old.

(3) Ohio Gladiator, Grade Hereford, two-year-old.

(4) Forest Mill Jot, Pure Bred Aberdeen Angus, two-year-old.

(5) Ohio Lad, Pure Bred Aberdeen Angus, two-year-old.

(6) Ohio Red Quality, Red Polled, one-year-old.

(7) Ohio Sultan, Grade Shorthorn, one-year-old.

(8) Byron, Pure Bred Shorthorn, one-year-old.

The Gallow steer was second prize yearling and the Red Polled was second prize Red Polled steer in 1905 International. Byron was first prize Shorthorn Junior Calf Class. Black's Ohio Champion 1904 was in the Grand Champion car load lot of calves at the International and in 1905 he was in the Champion carload of yearlings in the Southwestern District.

Swine—(1) Two yearling Berkshire Barrows. These were in the Grand Champion pen at the last International.

(2) Three yearling large Yorkshires.

(3) Three Pure Bred Berkshires, six months' class.

(4) Five Poland Chinas, six to twelve months' class.

(5) Two Cross Breeds, 150 to 200 pounds in weight.